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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/899,220 | 07/06/2001 | Masahiro Baba | 210841US2SRD | 3565 |
| 22850 | 7590 | 09/10/2004 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | SHENG, TOM V | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2673 | |

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,220

Applicant(s)

BABA ET AL.

Examiner

Tom V Sheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The disclosure filed on 10/9/2002 is regarding related pending application 10/190661. The application is considered and its publication is also noted in the PTO-892 form.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 1, it is unclear as to the scope of the invention regarding the terms "display period" in line 3 and "non-display period" in line 3. Do they correspond to individual pixel, line, or the entire panel? Could non-display period simply mean pixels displaying 0 gradation during display?

Claim 2 recites the limitations "the lightening period" in line 3, "the non-lightening period" in line 3, and "said light part" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitations "the lightening period", "the non-lightening period", and "said light part". There is insufficient antecedent basis for this limitation in the claim.

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Claims 4-14 are dependent on claim 1. Please verify that there are no other antecedent basis issues in the claims.

As for claim 15, it is unclear as to the scope of the invention on the meaning of "supplying said second to m-th signals to said signal line n times for a period until said first signal is written again after said first signal is written to a same pixel. Do the applicant really mean first 1st to m-th signals and second 1st to m-th signals. Please indicate figures and paragraphs in specification where this claim is referring.

Claim 15 recites the limitation "said first signal" and "said second to m-th signals". There are insufficient antecedent bases for these limitations in the claim.

Claims 16-28 are dependent on claim 1. Please verify that there are no other antecedent basis issues in the claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Reddy (US 6,175,355 B1).

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As for claim 1, Reddy teaches a liquid crystal display method to display an image according to an image signal (figure 3; each pixel frame is divided into sixteen pixel subframes PS0-PS15, corresponding to a four bit binary grayscale image data), comprising

changing a ratio of a display period (all the 'on' subframes) and a non-display period (all the 'off' subframes) of said image according to said image signal (with each gray level according to the image data, inherently the ratio of the display period to the non-display period changes). Please see column 3, line 24 through column 4, line 13.

5. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Bitzakidis et al. (US 5,912,651).

As for claim 1, Bitzakidis teaches a liquid crystal display method to display an image according to an image signal (figures 1 and 3; picture elements of the LCD panel 10 is addressed during an address period f and displayed during a non-address or dormant period D of each signal field period F; see column 9, lines 16-61), comprising

changing a ratio of a display period (non-address) and a non-display period (address period) of said image according to said image signal (the relative durations of the non-address and address periods can be varied to an extent inherently according to applied video information; see column 12, lines 41-67). Because of the conflicting requirements of shorter display duration for better motion picture viewing and longer display duration when higher display brightness is needed, naturally the video signal itself becomes the main selection criteria.

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As for claims 2, 4, 5, Bitzakidis teaches another embodiment where the flash duration L of the light source 19 can be varied for the same reason analyzed for claim 1 above.

As for claim 3, 6, Bitzakidis teaches than an LC shutter could be interposed between the light source and display panel to modulate the light (column 14, lines 3-11).

As for claim 7, Bitzakidis teaches driving a black state between address periods instead of flashing light reads on claimed driving of image display signal and black display signal.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bitzakidis as applied to claim 1 above, and further in view of Reddy.

As for claim 15, Bitzakidis teaches addressing the LCD panel during addressing period and allowing display during non-addressing period. Bitzakidis does not teach applying either first 1st to m-th signals or second 1st to m-th signals and selecting k-th said second signals to write to said pixel.

Reddy teaches pixel driving by dividing into 16 subframes with each pixel driven with a four bit binary signal. Reddy's four bit signal in the first subframe read on claimed

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first 1st to m-th signals ($m = 4$) and his four bit signal in the second to 16th subframes read on claimed second 1st to m-th signals selected k-th times ($k = 15$).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate Reddy's subframe method into Bitzakidis addressing/non-addressing method because Reddy's method removes the need of amplitude modulation in display and further allows the driving of signals coincides with addressing period and displaying during non-driving or non-addressing period.

As for claims 16-24, obviously during still image display, grayscale could be increased because grayscale reduction effect of a moving image does not need to be considered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V Sheng whose telephone number is (703) 305-6708. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Sheng
August 31, 2004


KENT CHANG
PRIMARY EXAMINER